

## CLAIMS

Different and varying embodiments may be taught within the scope of the inventive concept that I have put forward here. As such the descriptive detail required by the law is to be taken as illustrative and not applied in a limiting sense.

I claim as my invention:

- 4) A roof vent system that acts and has as its objective to distinctly limit the pressure difference that can occur across a roof to a set value, the system being comprised of the following components and built to the following equation specifications and design parameters:
  - a. vents which pass through the roof, connecting the interior of the building with the outside atmosphere such that air may flow freely between the interior and exterior of the building;
  - b. equations into which are input data for the worst-case scenario pressure change above a building, the volume of the building and the pressure difference across the roof (across a roof meaning between the interior and exterior of a building) that the roof components of the specified building will tolerate, these said equations with said mentioned data providing a specific solution for the area (number of vents required) for the system to perform its objective of pressure difference limitation to a desired and set value in each application, said roof vent system's structure being specified and built according to the output of these equations (see Equation C);
  - c. the first parameter incorporating wind sheer data which is applied to the area solution provided by the area equation referred to in b. above, to give the compensated value for the final required venting area solution, with the roof vent system area and structure being specified and built in accordance with the dictates of this parameter;
  - d. the second parameter is applied such that the calculated area of venting from b. and c. must be placed such that said venting area is 'visible' to winds blown from each and every direction, (i.e. the calculated venting area is exposed to windward for all wind directions), this parameter being the next defining specification for the construction of the roof vent system;
  - e. the third parameter which takes the area of venting dictated by b. c. and d. and spreads its standardized component vents evenly across the specified roof areas, provides the final specification for the structure of the complete roof vent system as written in claim 4);

the structure of the roof vent system claimed in 4) is defined by the specifications a. through e. and must be built according to those specifications in order to perform its stated objective and inventive initiative of pressure difference limitation.

- 5) The use of the following specified vent apparatus as a pressure limiting tool in the over-all roof vent system as expressed in claim 4), the vent apparatus details being as follows:
- a. a vent which is comprised of a cylindrical tube that passes through the roof and acts as the means for connection and allowance of air flow between the interior and exterior of a building (see fig 4a), said vent cylindrical tube being attached by means of a bracket to said building's roof beams, (or other such support structure as is deemed suitable), furthermore a drain tube for the collection and removal of any water that does enter the vent runs from the lower end of the cylindrical vent body tube into the drains (or to the ground outside the building if this proves more convenient) (see fig 4f);
  - b. said vent structure also comprises a circular base plate and vent cap which are fixed parallel to each other and sit atop the roof, the said base plate sits flush with the roof (see fig 4a, 4b and 4e), the said cap attached above the said base plate to the said base plate, has the purpose of preventing rain from entering the vent mouth, a ring of vertical bars separate these two plates and the cap is smaller than the base plate such that the bars slope inwards from base plate to cap, (this is intended to inhibit blown debris catching on the vent), the said vertical bars are spaced such that the gap size between the bars doesn't allow bees access, (vents cannot become hive sites {see fig 4a});
  - c. the vent end opening to the exterior of the building is closed by a plug, (see figs 4b, 4c and 4d) the plug is open in high speed winds and closed when there is no wind present, the said plug is 'free floating' on a central shaft, the said plug being of a correct weight to be opened by a pressure difference less than the roof's designated  $P^*$  value, the said plug is a disc that has the cross-sectional shape of an airplane wing such that once pushed open the said plug is lifted by high speed winds, keeping the said vent open as long as high speed winds are blowing through the said vent, in addition the said plug is built with a small single direction flow valved hole in it (the valve flow direction being from the outside towards the inside of the building).